

AMENDMENT TO THE CLAIMS

1. (Currently amended) An apparatus for ~~amplifying an comparing~~ outputs of a first and a second photodetector, comprising:

a first circuit path comprising a first transistor, a current from said first photodetector being supplied to the first circuit path; and

a second circuit path comprising a second transistor, said two transistors connected to form a current mirror arrangement, said two transistors being such that the current mirror arrangement provides a signal that is an first amplified version of the output of the first photodetector;

a third circuit path comprising a third transistor, a current from said second photodetector being supplied to the third circuit path;

a fourth circuit path comprising a fourth transistor, said third and fourth transistors connected to form a current mirror arrangement, said third and fourth transistors being such that the current mirror arrangement provides for the second device an output signal that is a second amplified version of the output of the second photodetector; and

a comparator directly comparing the first and second amplified versions of the outputs of the first and second photodetectors without negative feedback.

2. (Currently amended) The apparatus of claim 1, wherein said first photodetector is in the first circuit path.

3. (Currently amended) The apparatus of claim 1, said ~~two~~ transistors comprising MOS transistors, wherein said second transistor has a width/length ratio that is larger than that of the first transistor.

4. (Currently amended) A photodetection apparatus, comprising:

a first photodetector;

a first device comprising:

(a) a first circuit path comprising a first transistor, a current from said first photodetector being supplied to the first circuit path; and

(b) a second circuit path comprising a second transistor, said two transistors connected to form a current mirror arrangement, said first and second transistors being such that the current mirror arrangement provides for the first device an output signal that is an amplified version of the output of the first photodetector;

a second photodetector; and

a second device comprising:

(c) a third circuit path comprising a third transistor, a current from said second photodetector being supplied to the third circuit path; and

(d) a fourth circuit path comprising a fourth transistor, said third and fourth transistors connected to form a current mirror arrangement, said third and fourth transistors being such that the current mirror arrangement provides for the second device an output signal that is an amplified version of the output of the second photodetector; and

a comparator directly comparing the first and second amplified versions of the outputs of the first and second photodetectors without negative feedback.

5. (Original) The apparatus of claim 4, wherein said first photodetector is in the first circuit path.

6. (Original) The apparatus of claim 4, wherein said second photodetector is in the third circuit path.

7. (Original) The apparatus of claim 4, said first and second transistors comprising MOS transistors, wherein said second transistor has a width/length ratio that is larger than that of the first transistor.
8. (Original) The apparatus of claim 4, said third and fourth transistors comprising MOS transistors, wherein said fourth transistor has a width/length ratio that is larger than that of the third transistor.
9. (Original) The apparatus of claim 4, wherein said first and/or second photodetectors are photodiodes.
10. (Currently amended) The apparatus of claim 4, wherein the apparatus is used in an optical encoder having a slit plate, said plates comprising a plurality of slits with a predetermined pitch, wherein relative motion is caused between the plate and the photodetectors, and wherein at least some of said photodetectors are aligned in a direction of the relative motion and spaced at an interval corresponding to 1/2 said predetermined pitch of the slits.
11. (Cancelled)
12. (Cancelled)
13. (Currently amended) The apparatus of claim 11, wherein said second photodetector is in the third circuit path.
14. (Currently amended) The apparatus of claim 11, wherein said first and/or second photodetectors are photodiodes.
15. (Currently amended) The apparatus of claim 11, wherein the apparatus is used in an optical encoder having a slit plate, said plates comprising a plurality of slits with a predetermined pitch, wherein relative motion is caused between the plate and the photodetectors, and wherein at least some of said photodetectors are aligned in a direction of the relative motion and spaced at an interval corresponding to 1/2 said predetermined pitch of the slits.

16. (New) An optical encoder having a slit plate, said plates comprising a plurality of slits with a predetermined pitch, wherein relative motion is caused between the plate and a first and a second photodetector, comprising:

a first circuit path comprising a first transistor, a current from said first photodetector being supplied to the first circuit path; and

a second circuit path comprising a second transistor, said two transistors connected to form a current mirror arrangement, said two transistors being such that the current mirror arrangement provides a signal that is an first amplified version of the output of the first photodetector;

a third circuit path comprising a third transistor, a current from said second photodetector being supplied to the third circuit path; and

a fourth circuit path comprising a fourth transistor, said third and fourth transistors connected to form a current mirror arrangement, said third and fourth transistors being such that the current mirror arrangement provides for the second device an output signal that is a second amplified version of the output of the second photodetector;

wherein said photodetectors are aligned in a direction of the relative motion and spaced at an interval corresponding to $1/2$ said predetermined pitch of the slits.

17. (New) The encoder of claim 16, further comprising a comparator directly comparing the first and second amplified versions of the outputs of the first and second photodetectors without negative feedback.